

Accredited Standards Committee*
National Committee for Information Technology Standards (NCITS)

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Date: August 12, 1999

Reply to: John Lohmeyer

To: T10 Membership
From: Ralph Weber / John Lohmeyer
Subject: Minutes of T10 Plenary Meeting #32 -- July 15, 1999
Colorado Springs, CO

Agenda

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 - 8.12 MultiMedia Command Set - 3 (MMC-3) {Project 1363-D} [Roberts]
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 - 9.5 Cable Testing Requirements (99-111r3) [Daggett]
 - 9.6 Protection for the Asynchronous Information Phases (99-119r6) [Evans & Leshay]
 - 9.7 Fairness Feature Control in SPI-3 (99-160r3) [Elliott/Houlder]
10. New Business
 - 10.1 Approval of MMC-2 Letter Ballot Comments Resolution and Forwarding to NCITS for First Public Review (98-230r2) [Roberts]
 - 10.2 Actions on Working Group Recommendations
 - 10.2.1 Asynchronous Information Protection(99-119r6) [Evans]

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NCITS Secretariat, Information Technology Industry Council (ITI)

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- 10.2.2 SPI-3 Table Restructuring (99-188r1) [Smith]
- 10.2.3 SPI-3 Normal Arbitration Fairness Control in SPI-3 (99-160r3) [Elliott]
- 10.2.4 SPI-3 cable performance (99-111r3) [Ham]
- 10.2.5 Change CRC timing values (99-185r2) [Elliott]
- 10.2.6 Change in MSE High-Z Current Specification (99-187r2) [Lohmeyer]
- 10.2.7 Release Glitch Management for QAS (99-191r1) [Moore]
- 10.2.8 Packetized error handling changes (99-212r1) [Penokie]
- 10.2.9 SPI-3 Timing Budget (99-127r8) [Aloisi]
- 10.2.10 ASC/ASCQ for CRC errors during DT transfer (99-210r1) [Williams]
- 10.2.11 ASCQ codes for ASC 5Dh (informational exceptions) (99-217r0) [Elliott]
- 10.2.12 REPORT LUNS and small allocation lengths (99-197r0) [Elliott]
- 10.2.13 Persistent Reservations Conflict Behavior (99-219r0) [Coughlan]
- 10.2.14 Register and Ignore Existing Key (99-199r0) [Coughlan]
- 10.2.15 EXTENDED COPY command (99-163r2) [Weber]
- 10.2.16 Application Client Log Page (99-180r1) [Houlder/Weber]
- 10.2.17 Domain Validation TR project proposal (99-214r1) [Lamers]
- 10.3 Resolution of RBC public review comments (99-209r1, 99-198) [Roberts]
- 10.4 Resolution of SSC letter ballot comments (99-011r1) [Peterson]
- 10.5 Consideration of motion to stabilize SPI-3 revision 7
- 10.6 Results of Letter Ballot on forwarding SSC to First Public Review (99-011r2) [Lohmeyer]
- 10.7 Persistent Reservations [Milligan]
- 11. ISO
 - 11.1 ISO Report [Milligan]
 - 11.2 ISO Business [Milligan]
 - 11.2.1 Approve DIS 14776-342 SCC-2 as presented
 - 11.2.2 Recommend withdrawal of the SIP project
 - 11.2.3 Recommend Fast Track of NCITS.325:1998 SBP-2
 - 11.2.4 MMC-2 NWI and CD
- 12. Liaison Reports
 - 12.1 T11 Liaison Report [Wanamaker]
 - 12.2 T13 Liaison Report [Milligan]
 - 12.3 SFF Industry Group [Allan]
 - 12.4 IEEE 1394 [Johansson]
 - 12.5 IEEE P1285 Status
 - 12.6 SCSI Trade Association (STA) [Jones/Aloisi]
- 13. Review of Action Items
- 14. Meeting Schedule
 - 14.1 Authorization of Working Group Meetings
- 15. Adjournment

Results of Meeting

1. Opening Remarks

John Lohmeyer, the T10 Chair, called the meeting to order at 9:00 a.m., Thursday July 15, 1999. He thanked LSI Logic for hosting the meeting.

John said that NCITS Subgroup Membership forms and the T10 Mailing Subscription form were available on the document table. He said that people should use the NCITS forms to insure the NCITS Secretariat has the latest membership information. These forms should be mailed directly to the NCITS Secretariat.

As is customary, the people attending introduced themselves and a copy of the attendance list was circulated. Copies of the draft agenda and general information on T10 were made available to those attending.

2. Approval of Agenda

The draft agenda was approved with the following additions/changes:

- 3.1 Voting procedures
 - 10.2.1 Asynchronous Information Protection(99-119r6) [Evans]
 - 10.2.2 SPI-3 Table Restructuring (99-188r1) [Smith]
 - 10.2.3 SPI-3 Normal Arbitration Fairness Control in SPI-3 (99-160r3) [Elliott]
 - 10.2.4 SPI-3 cable performance (99-111r3) [Ham]
 - 10.2.5 Change CRC timing values (99-185r2) [Elliott]
 - 10.2.6 Change in MSE High-Z Current Specification (99-187r2) [Lohmeyer]
 - 10.2.7 Release Glitch Management for QAS (99-191r1) [Moore]
 - 10.2.8 Packetized error handling changes (99-212r1) [Penokie]
 - 10.2.9 SPI-3 Timing Budget (99-127r8) [Aloisi]
 - 10.2.10 ASC/ASCQ for CRC errors during DT transfer (99-210r0) [Williams]
 - 10.2.11 ASCQ codes for ASC 5Dh (informational exceptions) (99-217r0) [Elliott]
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 - 10.2.13 Persistent Reservations Conflict Behavior (99-219r0) [Coughlan]
 - 10.2.14 Register and Ignore Existing Key (99-199r0) [Coughlan]
 - 10.2.15 EXTENDED COPY command (99-163r2) [Weber]
 - 10.2.16 Application Client Log Page (99-180r1) [Houlder/Weber]
 - 10.2.17 Domain Validation TR project proposal (99-214r1) [Lamers]
 - 11.2.1 Approve DIS 14776-342 SCC-2 as presented
 - 11.2.2 Recommend withdrawal of the SIP project
 - 11.2.3 Recommend Fast Track of NCITS.325:1998 SBP-2

The following agenda items were added/revised during the course of the meeting:

- 10.5 Consideration of motion to stabilize SPI-3 revision 7
- 10.6 Results of Letter Ballot on forwarding SSC to First Public Review (99-011r2) [Lohmeyer]
- 10.7 Persistent Reservations [Milligan]
- 11.2.4 MMC-2 NWI and CD

3. Attendance and Membership

The membership requirements were reviewed. NCITS rules permit one vote per organization. An individual from a new organization must attend two out of three consecutive plenary meetings. He/she may apply for voting membership the second meeting via a letter to the Chair of T10. The individual may apply for membership and begin voting at anytime following adjournment of the first meeting. Typically, the individual applies for membership and start casting votes at the second plenary meeting. Working group and other ad hoc meetings do not count toward attendance requirements.

The option that allows a person attending their first meeting may become a voting member immediately following that meeting, provided their NCITS fees have been paid, permits a new member to vote on letter ballots issued between his/her first and second meetings.

To maintain membership, organizations must pay the NCITS Service Fee (\$300). The ANSI International Program Fee (also \$300) is billed at the same time.

John briefly discussed the mailing fees. Complete pricing information is contained in the 1999 membership form (available at ftp://ftp.t10.org/t10/mem_form.txt).

There are also minimum attendance requirements to maintain voting membership on T10. If a member organization fails to attend two of the last three T10 meetings, they are warned that failing to attend the next T10 meeting would result in their membership being terminated. The Chair said he had sent letters to 21 people from 10 organizations informing them that their membership was in jeopardy due to non-attendance (see 99-006r0) and that their membership would be terminated if they did not attend this meeting. The following organizations were in attendance jeopardy:

AMP, Inc.
Ancot Corp.
Distributed Processing Tech.
Exabyte Corp.
Hitachi Storage Products
Methode Electronics, Inc.
Ophidian Designs
The JPM Company
Western Digital Corporation
Woven Electronics

All of the organizations were present except:

The JPM Company

They were terminated due to lack of attendance (i.e., the principal member was changed to observer status and the first alternate member, if any, was dropped; additional alternates, if any, were changed to observers).

At the end of the meeting, the following organizations requested new (or reinstated) membership:

Andataco
General Dynamics

The following organization requested voting membership following the meeting:

Advansys

The T10 membership during the meeting varied from 44 to 46 organizations (as members from two of the organizations in jeopardy arrived later in the meeting). Total voting membership following the meeting was 49 organizations up from 47 organizations following the last meeting. Enclosure (1) is the list of the people present at the meeting and enclosure (2) is the current T10 membership list.

3.1 Voting procedures

John Lohmeyer stated that the most recent instructions from the NCITS secretariat are to treat all actions as final actions for the purposes of the 'two week' rule. He further noted that NCITS is in the process of clarifying the 'two week' rule and changes are likely.

Gene Milligan questioned the sense of the current 'two week' rule, stating that he could invoke the 'two week' rule in regards to the agenda changes made earlier in this meeting. Larry Lamers asked for consistent application of the rules and John agreed to do so to the best of his abilities.

4. Approval of Minutes - May '99 Meeting Manchester, NH (T10/99-177r1)

The minutes were approved as written.

5. Document Distribution

Members who have any problems with their mailing subscription should deal directly with Judy Gales (jgales@itic.org) (202) 626-5741.

John Lohmeyer requested that all documents for the next mailing be in his hands in electronic format by 10:30 a.m. on Thursday July 22, 1999. Documents received after this time will go into a subsequent mailing.

John reminded the committee of the requirements for document submission. Since T10 meets its document retention requirements by preparing mailings, documents included in the mailing must be suitable for archiving. This means that native-format and/or Portable Document Format (PDF) electronic originals with proper identification must be submitted.

The electronic copies can be sent directly to John by e-mail (at lohmeyer@ix.netcom.com), or they can be transferred by ftp protocol to ftp.t10.org and placed in the /incoming directory. In the latter case, please also send e-mail to John informing him of the file name and location of the file.

Minutes are available on the T10 World Wide Web page (see below), and are distributed to the T10 Reflector.

To be added to the T10 Reflector, send an e-mail to majordomo@t10.org with the line 'subscribe t10' in the message body. The NCITS Secretariat maintains a World Wide Web page at <http://www.ncits.org/>. LSI Logic maintains a World Wide Web page on behalf of T10 on a server provided by the SCSI Trade Association at:

<http://www.t10.org/>

The current document register is enclosure (3). The T10 document register is also available at:

<ftp://ftp.t10.org/t10/dr.txt>

6. Call for Patents

This is a regular agenda item to identify any potential patent issues with developing standards.

A document is available from ANSI, "Procedures for the Development and Coordination of American National Standards", at no charge. This document is also on the WWW at http://www.ncits.org/help/ansi_sdo.html. Section 1.2.11 contains the ANSI patent policy. Amy Marasco manages patent issues for ANSI and can be contacted at amarasco@ansi.org or 212-642-4954.

John noted that he had received a letter from Barry Blount of Compaq (99-192r0) stating Compaq's position regarding US Patent 5,586,272 as applied to SPI-2 implementations. This patent may apply to the multi-party handshaking used in the SCAM protocol.

A call for patents was made.

Gene Milligan stated that he was acting on behalf of a Seagate customer and presented 99-220 (describing patent 4,633,350) to the committee. He requested that the Chair consider issues related to how this patent might interact with T10 approved standards, technical reports, and projects. John agreed to consider the patent issues.

No other patents were disclosed at this meeting.

7. Review of Old Action Items

- 306) Dave Peterson will prepare SSC revision 17 for letter ballot. *Complete.*
- 307) John Lohmeyer will conduct a letter ballot on SSC revision 17 for forwarding to first public review. *Complete.*
- 308) Ralph Weber will assign an SPC-2 version descriptor code to SSC revision 17. *Complete.*
- 309) Bob Snively will correspond with the one person who had responded to the reflector message in favor of retaining TTD and CIOP to solicit corrections for the known problems. *Complete.*
- 310) John Lohmeyer will notify NCITS that T10 recommends that project 1246-D (SSS) be closed. *Complete.*
- 311) John Lohmeyer will forward 99-140r4 to NCITS as a new project proposal for SPI-4. *Complete.*
- 312) Ralph Weber will review editorially the second sentence of item c in clause 5.3.2.5.3 before including 99-182r1. *Carry over.*
- 313) John Lohmeyer will arrange a conference call to discuss changes in 94-198r3 (T10 Standards Development Policy and Procedures). *Carry over.*
- 314) Ron Roberts will prepare 99-153r2 for forwarding to NCITS as a new project proposal for MMC-3. *Complete.*
- 315) John Lohmeyer will forward 99-153r2 to NCITS as a new project proposal for MMC-3. *Complete.*
- 316) Ron Roberts will prepare 99-154r2 for forwarding to NCITS as a new project proposal for RMC (Reduced Multi-media Commands). *Complete.*
- 317) John Lohmeyer will forward 99-154r2 to NCITS as a new project proposal RMC (Reduced Multi-media Commands). *Complete.*
- 318) Gene Milligan (IR) will contact Peter Johansson for a recommendation regarding whether SBP-2 should be submitted for ISO standardization and whether Peter is willing to edit for the resulting ISO project. *Complete*
- 319) Gene Milligan will submit a NWIP and a CD contribution for RBC to ISO/IEC for consideration. *Carry over.*
- 320) Ralph Weber will assign SPC-2 version descriptor codes for FC-PLDA ANSI NCITS TR-19:1998, FC-PLDA T11/1162-DT revision 2.1, FC-FLA ANSI NCITS TR-20:1998, FC-FLA T11/1235-DT revision 7, FC-Tape T11/1315-DT revision 1.16, and FC-AL-2 T11/1133-D revision 7.0. *Complete.*

8. Project Status Reports

8.1 Project Status Summary and NCITS Liaison [Lohmeyer]

John Lohmeyer said that the current T10 project status summary was included in the T10 Information Packages distributed prior to the meeting and will be included in the mailing as usual. John noted that NCITS is meeting in a couple of weeks in Washington, D.C..

8.2 SCSI Common Access Method - 3 (CAM-3) Status {Project 990-D} [Dallas]

Larry Lamers reported that the CAM-3 review meeting had identified at least three areas needing changes in CAM-3. Larry agreed to request minutes for the meeting from Bill Dallas, and took an action item to do so.

8.3 SCSI-3 Stream Commands (SSC) Status {Project 997-D} [Peterson]

Erich Oetting reported on the SSC meeting (minutes in 99-224). Erich noted that the group identified several editorial corrections in Annex C of SPC-2 (changes to make the tables match the SSC definitions). John Lohmeyer reported that the letter ballot on forwarding SSC revision 17 passed 42:3:0:2=47. Erich reported that SSC was not ready for forwarding action at this time, as resolution of the letter ballot comments was still in progress.

8.4 SCSI Fibre Channel Protocol - 2 (FCP-2) {Project 1144-D} [Snively]

Bob Snively reported that FCP-2 error recovery and tape error recovery have found synergy and he described some of the FCP-2 changes that will result. Bob stated that FCP-2 revision 2 has already been prepared and will be in the next committee mailing.

8.5 SCSI Architecture Model - 2 (SAM-2) {Project 1157-D} [Weber]

Ralph Weber reported that the SCSI working group discussed recent enhancements to the model for multi-port devices. He stated that SAM-2 revision 11 will be available for the next committee mailing and will contain the changes agreed by the working group as well as all committee approved changes. He expressed the belief that further changes to the multi-port device model would best be handled as proposals (not direct edits of SAM-2), and stated his personal intention to follow that method.

8.6 Multimedia Command Set - 2 (MMC-2) Status {Project 1228-D} [Roberts]

Ron Roberts reported MMC-2 revision 11 that includes all comments from Pioneer. The working group completed a review of MMC-2 producing revision 11 with two minor changes. Ron reported that 98-230r3 contains the comments resolutions for the MMC-2 letter ballot. Ron reported that working group unanimously recommended that MMC-2 be forwarded to first public review.

8.7 SCSI Primary Commands - 2 (SPC-2) Status {Project 1236-D} [Weber]

Ralph Weber reported that SPC-2 revision 11 will be available for the next committee mailing and will contain all committee approved changes.

8.8 Reduced Block Commands (RBC) {Project 1240-D} [McLean]

Pete McLean reported that the working group had resolved all the first public review comments on RBC. He noted that the changes in the area of persistent reservations could be viewed as substantive. The working group unanimously recommended that RBC revision 10 be accepted as resolving public review comments and forwarded to second public review. Pete reported that 99-209r1 contains the public review comments resolution.

Pete reviewed the history of the ANSI pre-edit for RBC and explained that the results of the ANSI pre-edit will be incorporated in RBC revision 10a. He stated the belief that a forwarding action for second public review would be appropriate for RBC revision 10a at this meeting. (Chair's note: This action was taken under agenda item 10.3.)

Ralph Weber took an action item to add an SPC-2 version descriptor for RBC revision 10a.

8.9 SCSI Socket/SSL Services Command Set (SSS) {Project 1246-D} [Parker]

John said that this project had been closed by NCITS per T10's request. It will be dropped from subsequent agendas. Gene Milligan asked that this item be moved to old business for future agendas, instead of being dropped entirely. The agenda change was ratified by the committee.

8.10 SCSI Parallel Interface - 3 (SPI-3) {Project 1302-D} [Penokie]

George Penokie reported that SPI-3 revision 7 has been available for some time. The committee discussed stabilizing SPI-3 revision 7. John Lohmeyer stated that he preferred placing this item after the approval of working group recommendations as it would improve its chances of passing.

Gene Milligan moved that the committee stabilize SPI-3 revision 7. George Penokie seconded the motion. Gene Milligan noted that the voting procedure requires a vote that is functionally equivalent to the NCITS two-thirds voting rule.

Mark Evans moved to defer consideration of the motion until agenda item 10.5. Roger Cummings seconded the motion. The motion to defer consideration passed 33:3:5=46.

8.11 SCSI Enclosure Profile (SEP) Technical Report {Project 1303-DT} [Weber]

John said that this project had been closed by NCITS per T10's request. It will be dropped from subsequent agendas.

8.12 MultiMedia Command Set - 3 (MMC-3) {Project 1363-D} [Roberts]

Ron Roberts reported that no proposal has been received from Mt. Fuji and no MMC-3 first draft is available.

8.13 Reduced MultiMedia Command Set (RMC) {Project 1364-D} [Roberts]

Ron Roberts reported that the first draft of RMC will be available shortly after the deadline for the next committee mailing.

8.14 SCSI Parallel Interface - 4 (SPI-4) {Project 1365-D} [Penokie]

George Penokie reported that the working group discussed some preliminary proposals for SPI-4 (minutes in 99-200). He stated that no SPI-4 draft will be available before the September committee meeting.

9. Old Business

9.1 Recommendation that NCITS withdraw X3.276:1997 SCSI-3 Controller Commands

George Penokie moved that T10 recommend that NCITS withdraw X3.276:1997 SCSI-3 Controller Commands, X3.253:1995 SCSI-3 Parallel Interface & its Amendment X3.292:1997, X3.292:1997 SCSI-3 Interlocked Protocol, and Fast-20 X3.277:1996. Bill Galloway seconded the motion. Larry Lamers asked how the action would effect the ISO versions of the standards, and Gene Milligan said that ISO activities should proceed separately but be influenced by ANS actions.

Dal Allan moved to divide the question. Larry Lamers seconded the motion to divide the question. The motion to divide the question passed 25:0:9:12=46.

From the divided motion, the motion on the floor was for T10 to recommend that NCITS withdraw X3.276:1997 SCSI-3 Controller Commands. Gene Milligan asked if the mover would be willing to withdraw the motion. George Penokie was agreeable to withdrawing the motion, but Roger Cummings objected, and discussion of the motion continued.

Gene Milligan asked that SCC not be withdrawn because products have been built claiming compliance with SCC. Bob Snively and Roger Cummings spoke in favor of withdrawing SCC as SCC-2 would be sufficient. Ed Gardner asked if SCC-2 is a superset of SCC (which would mean that a product designed to SCC would meet the requirements of SCC-2). George Penokie (SCC and SCC-2 technical editor) stated that SCC-2 is a superset of SCC.

On a roll call vote, the divided motion for T10 to recommend that NCITS withdraw X3.276:1997 SCSI-3 Controller Commands passed 29:3:0:13=45. Details of the roll call vote were as follows.

Organization	Stat	Name	Yes	No	Abs	NP
Adaptec, Inc.	P	Mr. Lawrence J. Lamers	1			
AMP, Inc.	A	Mr. Elwood Parsons	1			
Amphenol Interconnect						1
Ancot Corp.	P	Mr. Bart Raudebaugh	1			
Apple Computer	A	Mr. Ron Roberts	1			
Berg Electronics						1
BREA Technologies, Inc.	P	Mr. Bill Galloway	1			
Circuit Assembly Corp.						1
CMD Technology	P	Mr. Edward Haske	1			
Compaq Computer Corp.	P	Mr. Robert C. Elliott	1			
Crossroads Systems, Inc.	P	Mr. Neil Wanamaker	1			
Dallas Semiconductor	A	Mr. Michael Smith	1			
Distributed Processing Tech.	P	Mr. Roger Cummings	1			
ENDL	P	Mr. I. Dal Allan		1		
Exabyte Corp.	P	Mr. Tom Jackson	1			
Fujitsu (FCPA)	P	Mr. Ben-Koon Lin	1			
Harting, Inc. of N. America						1
Hewlett Packard Co.	P	Mr. J. R. Sims	1			
Hitachi Cable Manchester	A	Ms. Jacqueline Sylvia	1			
Hitachi Storage Products	P	Mr. Anthony Yang				1
Honda Connectors	P	Mr. Thomas J. Kulesza	1			
IBM Corp.	P	Mr. George O. Penokie	1			
Iomega Corp.						1
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1			
Lasercard Systems Corp.						1
Linfinity Micro	P	Mr. Louis Grantham	1			
LSI Logic Corp.	P	Mr. John Lohmeyer	1			
Madison Cable Corp.	P	Ms. Jie Fan	1			
Maxtor Corp.	P	Mr. Pete McLean	1			
Molex Inc.						1
Mylex Corp.	P	Mr. Brian McKean	1			
Ophidian Designs	P	Mr. Edward A. Gardner	1			
Panasonic Technologies, Inc						1
Philips Electronics						1
QLogic Corp.						1
Quantum Corp.	P	Mr. Mark Evans	1			
Seagate Technology	P	Mr. Gene Milligan		1		
Silicon Systems, Inc.	P	Mr. Robert Morris		1		
Storage Technology Corp.	P	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1			
Toshiba America Elec. Comp.	P	Mr. Tasuku Kasebayashi	1			
UNISYS Corporation						1
Unitrode Corporation	P	Mr. Paul D. Aloisi	1			
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1			
Woven Electronics						1

29 3 0 13 = 45

John Lohmeyer took an action item to notify NCITS that T10 recommends the withdrawal X3.276:1997 SCSI-3 Controller Commands.

9.2 Recommendation that NCITS withdraw X3.253:1995 SCSI-3 Parallel Interface & its Amendment

From the divided motion in item 9.1, the motion on the floor was for T10 to recommend that NCITS withdraw X3.253:1995 SCSI-3 Parallel Interface & its Amendment.

Gene Milligan stated his preference that consideration of the standards be postponed to their renewal date and that the committee in the case of SPI give consideration to the dedication it contains.

On a roll call vote, the divided motion for T10 to recommend that NCITS withdraw X3.253:1995 SCSI-3 Parallel Interface & its Amendment passed 37:2:0:7=46. Details of the roll call vote were as follows.

Organization	Stat	Name	Yes	No	Abs	NP
Adaptec, Inc.	P	Mr. Lawrence J. Lamers	1			
AMP, Inc.	A	Mr. Elwood Parsons	1			
Amphenol Interconnect	P	Mr. Bill Mable	1			
Ancot Corp.	P	Mr. Bart Raudebaugh	1			
Apple Computer	A	Mr. Ron Roberts	1			
Berg Electronics	P	Mr. Douglas Wagner	1			
BREA Technologies, Inc.	P	Mr. Bill Galloway	1			
Circuit Assembly Corp.	A	Mr. Dennis Lang	1			
CMD Technology	P	Mr. Edward Haske	1			
Compaq Computer Corp.	P	Mr. Robert C. Elliott	1			
Crossroads Systems, Inc.	P	Mr. Neil Wanamaker	1			
Dallas Semiconductor	A	Mr. Michael Smith	1			
Distributed Processing Tech.	P	Mr. Roger Cummings	1			
ENDL	P	Mr. I. Dal Allan	1			
Exabyte Corp.	P	Mr. Tom Jackson	1			
Fujitsu (FCPA)	P	Mr. Ben-Koon Lin	1			
Harting, Inc. of N. America						1
Hewlett Packard Co.	P	Mr. J. R. Sims	1			
Hitachi Cable Manchester	A	Ms. Jacqueline Sylvia	1			
Hitachi Storage Products	P	Mr. Anthony Yang	1			
Honda Connectors	P	Mr. Thomas J. Kulesza	1			
IBM Corp.	P	Mr. George O. Penokie	1			
Iomega Corp.						1
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1			
Lasercard Systems Corp.						1
Linfinity Micro	P	Mr. Louis Grantham	1			
LSI Logic Corp.	P	Mr. John Lohmeyer	1			
Madison Cable Corp.	P	Ms. Jie Fan	1			
Maxtor Corp.	P	Mr. Pete McLean	1			
Methode Electronics, Inc.	A	Mr. John McKiness	1			
Molex Inc.	O	Mr. Martin Ogbuokiri	1			
Mylex Corp.	P	Mr. Brian McKean	1			
Ophidian Designs	P	Mr. Edward A. Gardner	1			
Panasonic Technologies, Inc						1
Philips Electronics						1
QLogic Corp.						1
Quantum Corp.	P	Mr. Mark Evans	1			
Seagate Technology	P	Mr. Gene Milligan		1		
Silicon Systems, Inc.	P	Mr. Robert Morris		1		
Storage Technology Corp.	P	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1			
Toshiba America Elec. Comp.	P	Mr. Tasuku Kasebayashi	1			
UNISYS Corporation						1
Unitrode Corporation	P	Mr. Paul D. Aloisi	1			
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1			
Woven Electronics	P	Mr. Doug Piper	1			
			37	2	0	7 = 46

John Lohmeyer took an action item to notify NCITS that T10 recommends the withdrawal of X3.253:1995 SCSI-3 Parallel Interface & its Amendment.

Bob Snively moved that the SPI-3 editor be instructed to include the dedication from SPI in SPI-3. Dal Allan seconded the motion. In the absence of any objections, the motion passed unanimously.

John Lohmeyer and Larry Lamers took an action item to provide the SPI-3 editor with the electronic information used to include the dedication in SPI. George Penokie took an action item to include the SPI dedication in SPI-3.

9.3 Recommendation that NCITS withdraw X3.292:1997 SCSI-3 Interlocked Protocol

From the divided motion in item 9.1, the motion on the floor was for T10 to recommend that NCITS withdraw X3.292:1997 SCSI-3 Interlocked Protocol.

Gene Milligan stated his preference that consideration of the standards be postponed to their renewal date.

On a roll call vote, the divided motion for T10 to recommend that NCITS withdraw X3.292:1997 SCSI-3 Interlocked Protocol passed 37:2:0:7=46. Details of the roll call vote were the same as for agenda item 9.2.

John Lohmeyer took an action item to notify NCITS that T10 recommends the withdrawal of X3.292:1997 SCSI-3 Interlocked Protocol.

9.4 Recommendation that NCITS withdraw X3.277:1996 Fast-20

The chair requested that the group consider withdrawing Fast-20 before SPI and SIP. George Penokie explained the need to keep SPI and SIP should Fast-20 be kept, and noted that Fast-20 appeared to be the most likely of the three to be kept.

From the divided motion in item 9.1, the motion on the floor was for T10 to recommend that NCITS withdraw X3.277:1996 Fast-20.

Gene Milligan stated his preference that consideration of the standards be postponed to their renewal date.

Jie Fan noted that withdrawing Fast-20 will cause incompatibilities in the cable requirements rendering cables specified in SPI-3 non-functional on Fast-20, which she felt would be sufficient reason for not withdrawing Fast-20. Paul Aloisi and Ed Gardner reviewed SPI-2 and Fast-20 to compare cable requirements. Jie Fan agreed with Ed Gardner that the Fast-20 cable requirements were carried into SPI-2 without changes.

On a roll call vote, the divided motion for T10 to recommend that NCITS withdraw X3.277:1996 Fast-20 passed 37:2:0:7=46. Details of the roll call vote were the same as for agenda item 9.2.

John Lohmeyer took an action item to notify NCITS that T10 recommends the withdrawal of X3.277:1996 Fast-20.

9.5 Cable Testing Requirements (99-111r3) [Daggett]

Paul Aloisi presented concerns regarding the cross talk requirements in 99-111r3 (see 99-215r0). He noted that he will be attending the next cable performance meeting to discuss these issues.

John Lohmeyer reported that the working group recommended acceptance of 99-111r3 on a vote of 18:1:1 but required that 98-219 be approved for inclusion in SPI-3 before 99-111r3 can be incorporated. 98-219 proposes an annex for SPI-3 whose content will be the testing procedures to be used when verifying that the requirements in 99-111r3 are met. Because 98-219 was not yet approved for inclusion, John deferred consideration of this topic to the September meeting.

9.6 Protection for the Asynchronous Information Phases (99-119r6) [Evans & Leshay]

Mark Evans moved that 99-119r6 be approved for incorporation in SPI-3 as an informative annex. Bill Galloway seconded the motion.

Ralph Weber reported that the working group recommended inclusion of the proposal on a vote of 6:4:10.

Mark noted that the method described in the proposal is being implemented and stated the belief that documentation of the method in a public document would be the best service to the industry.

George Penokie spoke against the motion, offering a demonstration of why the proposal has little or no technical merit.

Dal Allan requested that wording such as 'enhanced' be removed from the annex. Mark Evans noted that further changes are possible after the proposal is incorporated in SPI-3.

Ed Gardner asked why this is an informative annex not a normative-optional annex. Mark Evans stated that the informative annex was chosen to make the proposal less objectionable to those who thought it lacked merit.

Rob Elliott stated that problems with early LVD implementations motivated Compaq to develop and require this feature. George Penokie noted that data had been presented supporting the position that the proposed feature is not substantially useful, and requested data to the contrary. Rob Elliott stated that Compaq was unable to present data favorable to the proposal.

Bill Galloway stated that, given the number of companies implementing the proposal, it should be in the standard. If everything that is not seen as usable and productive by everybody were to be prohibited from inclusion in standards, then other recently adopted proposals might not be in the standard. George Penokie noted that most of the examples cited had shown technical merit even if they failed to win any popularity contests, whereas this proposal has not been accompanied by data showing technical merits.

Mark Evans moved to call the question. Bill Galloway seconded the motion.

Larry Lamers and John Lohmeyer discussed the relationship the motion to the two-week rule. Larry asked that committee members be made aware that posting to the web site does not constitute reflector notification of a document for the purposes of the two-week rule.

The motion to call the question passed unanimously. John Lohmeyer requested a roll-call vote.

On a roll call vote, the motion to approve 99-119r6 be incorporation in SPI-3 as an informative annex passed 21:6:9:10=46. The details of the roll call vote are as follows:

Organization	Stat	Name	Yes	No	Abs	NP
Adaptec, Inc.	P	Mr. Lawrence J. Lamers	1			
AMP, Inc.	A	Mr. Elwood Parsons			1	
Amphenol Interconnect						1
Ancot Corp.	P	Mr. Bart Raudebaugh			1	
Apple Computer	A	Mr. Ron Roberts	1			
Berg Electronics	P	Mr. Douglas Wagner	1			
BREA Technologies, Inc.	P	Mr. Bill Galloway	1			
Circuit Assembly Corp.	A	Mr. Dennis Lang	1			
CMD Technology	P	Mr. Edward Haske	1			
Compaq Computer Corp.	P	Mr. Robert C. Elliott	1			
Crossroads Systems, Inc.	P	Mr. Neil Wanamaker			1	
Dallas Semiconductor	A	Mr. Michael Smith			1	
Distributed Processing Tech.	P	Mr. Roger Cummings		1		
ENDL	P	Mr. I. Dal Allan	1			
Exabyte Corp.	P	Mr. Tom Jackson			1	
Fujitsu (FCPA)	P	Mr. Ben-Koon Lin	1			
Harting, Inc. of N. America						1
Hewlett Packard Co.	P	Mr. J. R. Sims	1			
Hitachi Cable Manchester	A	Ms. Jacqueline Sylvia	1			
Hitachi Storage Products	P	Mr. Anthony Yang	1			
Honda Connectors						1
IBM Corp.	P	Mr. George O. Penokie		1		
Iomega Corp.						1
KnowledgeTek, Inc.	P	Mr. Dennis Moore	1			
Lasercard Systems Corp.						1
Linfinity Micro	P	Mr. Louis Grantham	1			
LSI Logic Corp.	P	Mr. John Lohmeyer	1			
Madison Cable Corp.	P	Ms. Jie Fan		1		
Maxtor Corp.	P	Mr. Pete McLean	1			
Methode Electronics, Inc.						1
Molex Inc.	A	Mr. Jay Neer		1		
Mylex Corp.	P	Mr. Brian McKean	1			
Ophidian Designs	P	Mr. Edward A. Gardner	1			
Panasonic Technologies, Inc						1
Philips Electronics						1
QLogic Corp.						1
Quantum Corp.	P	Mr. Mark Evans	1			
Seagate Technology	P	Mr. Gene Milligan	1			
Silicon Systems, Inc.	P	Mr. Robert Morris		1		
Storage Technology Corp.	P	Mr. Erich Oetting			1	
Sun Microsystems Computer Co	P	Mr. Robert N. Snively		1		
Toshiba America Elec. Comp.	P	Mr. Tasuku Kasebayashi	1			
UNISYS Corporation						1
Unitrode Corporation	P	Mr. Paul D. Aloisi			1	
Western Digital Corporation	P	Mr. Jeffrey L. Williams			1	
Woven Electronics	A#	Mr. Harvey Waltersdorf			1	

21 6 9 10 = 46

Bob Snively stated that his no vote was based on the belief that a properly implemented system will not demonstrate any flaws that require this feature and that the feature adds to system costs and complexity. Roger Cummings stated that his no vote was due to a lack of due diligence in the development and review of this proposal; we haven't demonstrated that its benefits outweigh its cost, and it should not appear in an informative annex.

9.7 Fairness Feature Control in SPI-3 (99-160r3) [Elliott/Houlder]

Ralph Weber reported that the working group recommended 99-160r3 for inclusion in SPI-3 on a vote of 11:1:4.

Rob Elliott moved that 99-160r3 be approved for inclusion in SPI-3. Bill Galloway seconded the motion. In the absence of any objections, the motion passed unanimously.

Rob addressed concerns raised by Jeff Williams in the working group by stating that an additional proposal for QAS fairness will be brought to the September meeting that adds the fairness counter principle that was dropped from 99-160r3. The QAS fairness proposal had been dropped in the belief that the non QAS portion of the fairness proposal would have an easier time gaining approval.

10. New Business

10.1 Approval of MMC-2 Letter Ballot Comments Resolution and Forwarding to NCITS for First Public Review (98-230r2) [Roberts]

Ron Roberts moved that the MMC-2 letter ballot comments resolution (99-230r3) be approved as resolving the letter ballot comments and MMC-2 revision 11 be forwarded to NCITS for processing towards first public review. Bob Snively seconded the motion. The motion passed 32:0:0:14=46.

John Lohmeyer took an action item to forward MMC-2 revision 11 to NCITS for processing toward first public review. Ralph Weber took an action item to add an SPC-2 version descriptor for MMC-2 revision 11.

10.2 Actions on Working Group Recommendations

10.2.1 Asynchronous Information Protection(99-119r6) [Evans]

This item was covered as 9.6.

10.2.2 SPI-3 Table Restructuring (99-188r1) [Smith]

Ralph Weber reported that the working group recommended incorporation of 99-188r1 in SPI-3 on a vote of 7:2:0.

Gene Milligan and Paul Aloisi explained the proposal as resolving a conflict between two tables in SPI-3 (and even in SPI-2).

Gene Milligan moved that 99-188r1 be approved for inclusion in SPI-3. George Penokie invoked the two-week rule regarding this proposal/motion. Discussion of this topic was deferred to the September meeting.

Gene Milligan objected to the ruling of the chair regarding the two-week rule since the ruling is in violation of the requirements stated in the SD-2. Gene requested that the following excerpt of the SD-2 be read into the minutes: in 4.3.4 the SD-2 states, "Documents should be distributed at least two weeks prior to the meeting. Any documents sent later may be considered, but final action may only be taken in the absence of objections by any voting member present; otherwise they must be acted upon by letter ballot or deferred until the next meeting."

John Lohmeyer referred Gene to the discussion of voting procedures earlier in the meeting (see item 3.1).

10.2.3 SPI-3 Normal Arbitration Fairness Control in SPI-3 (99-160r3) [Elliott]

This item was covered as 9.7.

10.2.4 SPI-3 cable performance (99-111r3) [Ham]

This item was covered as 9.5.

10.2.5 Change CRC timing values (99-185r2) [Elliott]

Based on the unanimous approval of the working group, Rob Elliott moved that 99-185r2 be approved for incorporation in SPI-3. Bill Galloway seconded the motion. In the absence of any objections, the motion passed.

10.2.6 Change in MSE High-Z Current Specification (99-187r2) [Lohmeyer]

Based on the unanimous approval of the working group, John Lohmeyer moved that 99-187r2 be approved for incorporation in SPI-3. Gene Milligan seconded the motion. The motion passed on a vote of 31:0:1:14=46.

10.2.7 Release Glitch Management for QAS (99-191r1) [Moore]

Based on the unanimous approval of the working group, Skip Jones moved that 99-191r1 be approved for incorporation in SPI-3. Gene Milligan seconded the motion. The motion passed on a vote of 32:0:1:13=46.

10.2.8 Packetized error handling changes (99-212r1) [Penokie]

Based on the unanimous approval of the working group, George Penokie moved that 99-212r1 be approved for incorporation in SPI-3. Bill Galloway seconded the motion. The motion passed on a vote of 32:0:1:13=46.

10.2.9 SPI-3 Timing Budget (99-127r8) [Aloisi]

Based on the unanimous approval of the working group, Paul Aloisi moved that 99-127r8 be approved for incorporation in SPI-3. John Lohmeyer seconded the motion.

Bill Galloway questioned the details of the timing diagram and the receiver mask. Paul explained the decisions taken by the May and July working groups that lead to the content of the proposal.

The motion passed on a vote of 27:1:1:18=46. Bill Galloway stated that his no vote was based on an uncertainty that a glitch which goes to 30 mV is now classified as 'may be detected' when it formerly was classified as 'shall not be detected.'

10.2.10 ASC/ASCQ for CRC errors during DT transfer (99-210r1) [Williams]

Based on the unanimous approval of the working group, Jeff Williams moved that 99-210r1 be approved for incorporation in SPC-2. George Penokie seconded the motion. The motion passed on a vote of 31:0:0:15=46.

10.2.11 ASCQ codes for ASC 5Dh (informational exceptions) (99-217r0) [Elliott]

Based on the unanimous approval of the working group, Rob Elliott moved that 99-217r0 be approved for incorporation in SPC-2. Jeff Williams seconded the motion.

Bob Snively requested an explanation of how these codes aid in error isolation. Rob stated that it would improve the information provided to users and service personnel. Gene Milligan stated that in general ASCQ codes can be used in the processing of returned drives.

The motion passed on a vote of 29:0:2:15=46.

10.2.12 REPORT LUNS and small allocation lengths (99-197r0) [Elliott]

Based on the unanimous approval of the working group, Rob Elliott moved that 99-197r0 be approved for incorporation in SPC-2 and that the SPC-2 editor be instructed to incorporate the editorial changes approved by the working group. Bill Galloway seconded the motion. The motion passed on a vote of 29:0:0:17=46.

10.2.13 Persistent Reservations Conflict Behavior (99-219r0) [Coughlan]

Tom Coughlan described an e-mail message questioning a conflict between a table and the persistent reservations model text. He then reviewed a proposal to bring the table into compliance with the text. Tom moved that 99-219r0 be incorporated in SPC-2. Bob Snively seconded the motion. George Penokie stated that since the text is correct, this change is considered non-technical. The motion passed on a vote of 26:0:0:20=46.

10.2.14 Register and Ignore Existing Key (99-199r0) [Coughlan]

Based on the unanimous approval of the working group, Tom Coughlan moved that 99-199r0 be approved for incorporation in SPC-2 and the SPC-2 editor be instructed to incorporate the editorial changes approved by the working group. Bill Galloway seconded the motion. The motion passed on a vote of 27:0:0:19=46.

10.2.15 EXTENDED COPY command (99-163r2) [Weber]

Based on the unanimous approval of the working group, Ralph Weber moved that 99-163r2 (r1 as revised) be approved for incorporation in SPC-2. Erich Oetting seconded the motion. In the absence of any objections, the motion passed unanimously.

10.2.16 Application Client Log Page (99-180r1) [Houlder/Weber]

Based on the unanimous approval of the working group, Ralph Weber moved that 99-180r1 be approved for incorporation in SPC-2. Gene Milligan seconded the motion. In the absence of any objections, the motion passed unanimously.

10.2.17 Domain Validation TR project proposal (99-214r1) [Lamers]

Based on the unanimous approval of the working group, Larry Lamers moved that 99-214r1 (r0 as revised) be forward to NCITS for processing as a project proposal for a technical report on Domain Validation. Paul Aloisi seconded the motion. The motion passed 30:0:0:16=46.

John Lohmeyer took an action item to forward 99-214r1 to NCITS for processing as a project proposal for a technical report on Domain Validation.

10.3 Resolution of RBC public review comments (99-209r1, 99-198) [Roberts]

Based on the unanimous recommendation of the working group, Pete McLean moved that RBC revision 10 be accepted as resolving the public review comments and that 99-209r1 be accepted as the comments resolution document and that the project editor be instructed to prepare RBC revision 10a incorporating the ANSI pre-edit for forwarding to second public review. Ralph Weber seconded the motion. The motion passed 33:0:0:13=46.

Ron Roberts took an action item to prepare RBC revision 10a incorporating the ANSI pre-edit for forwarding to second public review. John Lohmeyer took an action item to forward RBC revision 10a to second public review. John Lohmeyer took an action item send a letter to Ralph Weber formally responding to his public review comments.

10.4 Resolution of SSC letter ballot comments (99-011r1) [Peterson]

Neil Wanamaker reported that resolution of SSC letter ballot comments has not been completed. Action on this topic was deferred to the September meeting.

10.5 Consideration of motion to stabilize SPI-3 revision 7

Gene Milligan moved to table consideration of the motion to stabilize SPI-3 revision 7. Bob Snively seconded the motion. The motion to table passed 9:6:12:19=46. Pete McLean requested that the minutes note that a roll call vote had been requested on the motion to stabilize SPI-3 revision 7 so that a roll call vote would be taken whenever the motion is removed from the table.

10.6 Results of Letter Ballot on forwarding SSC to First Public Review (99-011r2) [Lohmeyer]

John Lohmeyer reported that the letter ballot to forward SSC to first public review passed on a vote of 42:3:0:2=47 (see 99-011r2 for complete details).

10.7 Persistent Reservations [Milligan]

Gene Milligan informed the committee of a problem with the 'persist across power cycle' capability in persistent reservations that can render a drive inoperative. The prohibition of the Write Buffer command for downloading microcode prior to the drive becoming ready is the issue. He stated that a proposal for changes will be presented to the September working group.

11. ISO**11.1 ISO Report [Milligan]**

Gene Milligan gave an oral report and provided an electronic report in document T10/99-216r0.

11.2 ISO Business [Milligan]**11.2.1 Approve DIS 14776-342 SCC-2 as presented**

Gene Milligan moved that T10 approve DIS 14776-342 (SCC-2) as presented. George Penokie seconded the motion. Gene noted that the DIS is not yet available for approval, but that given the timing of the T10 meetings the opportunity to approve the DIS will likely expire before the September meeting. Gene requested that George Penokie review what the differences between the ANS and the DIS consisted of. George Penokie reported that the changes between the ANS and the DIS were the use of ISO/IEC publication numbers and editorial changes.

On a roll call vote, the motion passed 24:2:0:20=46. The details of the roll call vote are as follows:

Organization	Stat	Name	Yes	No	Abs	NP
Adaptec, Inc.	P	Mr. Lawrence J. Lamers	1			
AMP, Inc.						1
Amphenol Interconnect						1
Ancot Corp.	P	Mr. Bart Raudebaugh	1			
Apple Computer	A	Mr. Ron Roberts	1			
Berg Electronics						1
BREA Technologies, Inc.						1
Circuit Assembly Corp.						1
CMD Technology	P	Mr. Edward Haske	1			
Compaq Computer Corp.	P	Mr. Robert C. Elliott	1			
Crossroads Systems, Inc.	P	Mr. Neil Wanamaker	1			
Dallas Semiconductor						1
Distributed Processing Tech.	P	Mr. Roger Cummings	1			
ENDL	P	Mr. I. Dal Allan		1		
Exabyte Corp.	P	Mr. Tom Jackson	1			
Fujitsu (FCPA)						1
Harting, Inc. of N. America						1
Hewlett Packard Co.	P	Mr. J. R. Sims	1			
Hitachi Cable Manchester	A	Ms. Jacqueline Sylvia	1			
Hitachi Storage Products						1
Honda Connectors						1
IBM Corp.	P	Mr. George O. Penokie	1			
Iomega Corp.						1
KnowledgeTek, Inc.						1
Lasercard Systems Corp.						1
Linfinity Micro						1
LSI Logic Corp.	P	Mr. John Lohmeyer	1			
Madison Cable Corp.						1
Maxtor Corp.	P	Mr. Pete McLean	1			
Methode Electronics, Inc.						1
Molex Inc.	O	Mr. Martin Ogbuokiri	1			
Mylex Corp.	P	Mr. Brian McKean	1			
Ophidian Designs	P	Mr. Edward A. Gardner		1		
Panasonic Technologies, Inc						1
Philips Electronics						1
QLogic Corp.	P	Mr. Skip Jones	1			
Quantum Corp.	A	Mr. Patrick McGarrah	1			
Seagate Technology	P	Mr. Gene Milligan	1			
Silicon Systems, Inc.	A	Mr. Stephen G. Finch	1			
Storage Technology Corp.	P	Mr. Erich Oetting	1			
Sun Microsystems Computer Co	P	Mr. Robert N. Snively	1			
Toshiba America Elec. Comp.	P	Mr. Tasuku Kasebayashi	1			
UNISYS Corporation						1
Unitrode Corporation	P	Mr. Paul D. Aloisi	1			
Western Digital Corporation	P	Mr. Jeffrey L. Williams	1			
Woven Electronics						1

24 2 0 20 = 46

Dal Allan stated that his no vote was based on his opinion that ISO rubber stamping of T10 work has no value.

Gene Milligan took an action item to handle the international approval of DIS 14776-342 (SCC-2) as presented.

11.2.2 Recommend withdrawal of the SIP project

Gene Milligan moved that T10 recommend withdrawal the SIP ISO project. George Penokie seconded the motion.

On a roll call vote, the motion passed 24:2:0:20=46. The details of the roll call vote were the same as under agenda item 11.2.1.

Dal Allan stated that his no vote was based on his opinion that ISO rubber stamping of T10 work has no value.

Gene Milligan took an action item to process the international withdrawal of the SIP project.

11.2.3 Recommend Fast Track of NCITS.325:1998 SBP-2

Gene Milligan moved that T10 recommend fast track of NCITS.325:1998 (SBP-2). Steve Finch seconded the motion.

On a roll call vote, the motion passed 24:2:0:20=46. The details of the roll call vote were the same as under agenda item 11.2.1.

Dal Allan stated that his no vote was based on his opinion that ISO rubber stamping of T10 work has no value.

Gene Milligan took an action item to initiate fast track processing of NCITS:325:1998 (SBP-2).

11.2.4 MMC-2 NWI and CD

Ron Roberts moved that T10 instruct the IR to create a NWI and CD contribution for MMC-2. Gene Milligan seconded the motion.

On a roll call vote, the motion passed 24:2:0:20=46. The details of the roll call vote were the same as under agenda item 11.2.1.

Dal Allan stated that his no vote was based on his opinion that ISO rubber stamping of T10 work has no value.

Gene Milligan took an action item to create an NWI and CD contribution for MMC-2.

12. Liaison Reports

12.1 T11 Liaison Report [Wanamaker]

The T11 liaison report was provided to the committee electronically as 99-221r0. Neil Wanamaker presented the report to the committee.

12.2 T13 Liaison Report [Milligan]

Gene Milligan reported that the most recent T13 meeting was in Irvine, CA and the next meeting will be in Bolder, CO. He requested that T10 pay attention the T13 EDD version 3 enhanced BIOS project. Pete McLean reported that the content of ATA/ATAPI-5 is technically complete and asked interested persons review it.

12.3 SFF Industry Group [Allan]

Dal Allan provided the following electronic report for the minutes:

The HSS (High Speed Serial) Testing specification for copper cables is ready for balloting and a round of testing is scheduled at DG Clariion on July 27.

Preliminary effort has begun on the HSS (High Speed Serial) Testing specification for optical cables.

It had been thought the issues on HSSDC (High Speed Serial Data Connector) were resolved but the IEC draft is not a close companion of SFF-8420. A SSWG will be held in Harrisburg on July 26 to harmonize the two.

The proposal for an 80-pin Fibre Channel SCA-2 tape connector has been accepted and will be incorporated into SFF-8072. The difference in pinouts with 80-pin SCSI will not cause damage to either kind of device, but the Mated condition cannot be set if a Fibre Channel device is inserted into a SCSI slot or vice-versa.

12.4 IEEE 1394 [Johansson]

Gene Milligan reported that Peter Johansson was taking steps to fast track IEEE 1394.

12.5 IEEE P1285 Status

No report.

12.6 SCSI Trade Association (STA) [Jones/Aloisi]

The STA liaison report was provided to the committee electronically as 99-222r0. Paul Aloisi presented the report to the committee.

13. Review of Action Items

- 312) Ralph Weber will review editorially the second sentence of item c in clause 5.3.2.5.3.
- 313) John Lohmeyer will arrange a meeting to discuss proposals for changes and updates to the T10 procedures.
- 319) Gene Milligan will forward a ISO/IEC NWIP and a CD contribution for RBC to NCITS for further processing..
- 321) Ron Roberts will prepare RBC revision 10a incorporating the ANSI pre-edit for forwarding to second public review.
- 322) John Lohmeyer will forward RBC revision 10a to second public review.
- 323) John Lohmeyer will send a letter to Ralph Weber formally responding to his RBC public review comments.
- 324) John Lohmeyer will notify NCITS that T10 recommends the withdrawal X3.276:1997 SCSI-3 Controller Commands.
- 325) John Lohmeyer will notify NCITS that T10 recommends the withdrawal of X3.253:1995 SCSI-3 Parallel Interface & its Amendment.
- 326) John Lohmeyer will notify NCITS that T10 recommends the withdrawal of X3.292:1997 SCSI-3 Interlocked Protocol.
- 327) John Lohmeyer will notify NCITS that T10 recommends the withdrawal of X3.277:1996 Fast-20.
- 328) John Lohmeyer and Larry Lamers will provide the SPI-3 editor with the electronic information used to include the dedication in SPI.
- 329) George Penokie will include the SPI dedication in SPI-3.
- 330) John Lohmeyer will forward MMC-2 revision 11 to NCITS for processing toward first public review.
- 331) John Lohmeyer will forward 99-214r1 to NCITS for processing as a project proposal for a technical report on Domain Validation.
- 332) Gene Milligan will handle the international approval of DIS 14776-342 (SCC-2) as presented.
- 333) Gene Milligan will process the international withdrawal of the SIP project.
- 334) Gene Milligan will initiate fast track processing of NCITS:325:1998 (SBP-2).
- 335) Gene Milligan will forward a ISO/IEC NWIP and a CD contribution for MMC-2 to NCITS for further processing.
- 336) Ron Roberts will give RBC revision 10a to the IR in source and PDF format.
- 337) Ron Roberts will give MMC-2 revision 11 to the IR in source and PDF format.
- 338) Larry will request minutes for the June CAM-3 review meeting from Bill Dallas.

- 339) Ralph Weber will add an SPC-2 version descriptor for MMC-2 revision 11.
- 340) Ralph Weber will add an SPC-2 version descriptor for RBC revision 10a.

14. Meeting Schedule

The next plenary meeting of T10 will be September 16, 1999 in Huntington Beach, CA at the Hilton Waterfront Hotel (714-960-7873), hosted by QLogic. The meeting will begin at 9:00 a.m. on Thursday.

The meeting list for the next plenary week is:

September '99 Meeting Map
(7/15/99 Version)

Monday 9/13	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+=====+													
		T10 Proc. SG		SPI-3/SPI-4 WG										(50)
	+-----+													
		T11.3 FC-AL-3												(40)
	+-----+													
		Mt. Fuji - 4 WG												(20)
	+-----+													
Tuesday 9/14	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+=====+													
		SPI-3/SPI-4 WG												(50)
	+-----+													
		MMC-2 WG												(20)
	+-----+													
		SSC/FCP-2 Tape joint WG												(40)
	+=====+													
Wednesday 9/15	9	10	11	12	1	2	3	4	5	6	7	8	9	
	+=====+													
		SCSI WG												(50)
	+-----+													
		MMC-2 WG												(20)
	+-----+													
		T11 FC-VI		SFF WG		SFF								(40)
	+-----+													
														Qlogic Reception --> Party (All)
	+-----+													
Thursday 9/16	9	10	11	12	1	2	3	4	5	6	7	8		
	+-----+													
		T10 Plenary												(60/40)
	+-----+													
														STA Marcom (15)
	+-----+													
Friday 9/17	8	9	10	11	12	1	2	3	4	5				
	+-----+													
		SCSI Trade Association (STA)												(30)
	+-----+													

(*) - STA Technical meeting (includes SCSI Harbor) begins 30 minutes after the T10 plenary meeting but not before 2:30 pm

Meetings marked with == are T10-authorized meetings.
 Meetings marked with -- are authorized by other groups and may change
 without notice.

Other T10-authorized meetings:

Meeting	Date	Location / Contact
Cable Perf. SG	7/28/99 Wed.	Manchester, NH / Zane Daggett
Interconnect	7/29/99 Thur.	Manchester, NH / Zane Daggett
Modeling SG		
SPI-3 Edit	8/2/99 Mon.	Rochester, MN / T11
FCP-2, SSC,	8/4/99 Wed.	Rochester, MN / T11
FC-Tape		
Cable Perf. SG	8/31/99 Tue.	Colorado Springs, CO / Larry Barnes
Interconnect	9/01/99 Wed.	Colorado Springs, CO / Larry Barnes
Modeling SG		
Cable Perf. SG	9/28/99 Wed.	Chicago, IL / Martin Ogbuokiri
Interconnect	9/29/99 Thur.	Chicago, IL / Martin Ogbuokiri
Modeling SG		

Meeting Map Abbreviation Key:

Amnd: Amendment
 Cable Perf.: Cable Performance Testing
 CAM: Common Access Method
 CAM-3: Next generation CAM for SCSI-3
 EPI: SCSI Enhanced Parallel Interface (Technical Report)
 Encl Profile Enclosure Profile Study Group
 Fast-20: Data Transfer at 20 Mega-transfers/second (a.k.a., Ultra)
 Fast-40: Data Transfer at 40 Mega-transfers/second (a.k.a., Ultra2)
 Fast-80: Data Transfer at 80 Mega-transfers/second (a.k.a., Ultra3)
 FC: Fibre Channel
 FC-AL: Fibre Channel - Arbitrated Loop (a T11 project)
 FCLC: Fibre Channel Loop Community (not an NCITS activity)
 I/F: Interface
 HAP: High Availability Profile (Technical Report)
 LB: Letter Ballot
 MMC-2: Multimedia Commands - 2 (CD-ROM, DVD, etc.)
 PH: Physical (Connectors, Cables, Transceivers, etc.)
 Plenary: Full Committee Meeting
 RAID: Redundant Array of Independent Devices
 RBC: Reduced Block Commands
 SBC: SCSI-3 Block Commands
 SBP-2: Serial Bus Protocol for IEEE 1394 (2nd generation protocol)
 SCC-2: SCSI Controller Commands - 2 (2nd generation RAID command set)
 SCSI: Small Computer System Interface
 SES: SCSI Enclosure Services
 SCSI Harbor: A STA project on defining a wrapper for SCSI devices
 SFF: SFF Industry Group (not an NCITS activity)
 SG: Study Group
 SMC: SCSI-3 Medium Changer Commands
 SPC-2: SCSI Primary Commands - 2 (2nd generation)
 SPI-2: Second Generation SCSI Parallel Interface
 SPI-3: Third Generation SCSI Parallel Interface
 SSA: Serial Storage Interface
 SSC: SCSI-3 Stream Commands (includes Tape)
 SSWGs: Specific-Subject Working Groups
 STA: SCSI Trade Association (not an NCITS activity)
 STA Tech: STA Technical Meeting (T10 members invited)

T10: Lower Level Interfaces Technical Committee
 T10 Proc.: T10 Procedures
 WG: Working Group (same as Ad Hoc Group)

For more information about T10 activities, please contact the following people:

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Other Activities	John Lohmeyer	(719) 533-7560 lohmeier@ix.netcom.com

The long-term T10 meeting week schedule is:

Date	Location	Host/Comments
Sep 13-17, 1999	Huntington Beach, CA	QLogic
Nov 1-5, 1999	Monterey, CA	Adaptec / dates changed
Jan 10-14, 2000	Brisbane, Australia	ENDL Pacific Technologies
Mar 6-10, 2000	Dallas, TX	Unitrode
May 15-19, 2000	Nashua, NH	Hitachi Cable / dates changed
Jul 10-14, 2000	Colorado Springs, CO	LSI Logic
Sep 11-15, 2000	Huntington Beach, CA	QLogic
Oct 30-Nov 3, 2000	Monterey, CA	Adaptec / dates changed
Jan 15-19, 2001	(open)	
Mar 5-9, 2001	Dallas, TX	Unitrode {tentative}
May 7-11, 2001	Manchester, NH	Hitachi Cable
Jul 16-20, 2001	Colorado Springs, CO	LSI Logic
Sep 10-14, 2001	Huntington Beach, CA	QLogic
Nov 5-9, 2001	Monterey, CA	Adaptec

Jeff Williams move that T10 approve the hosts and locations for the March through November, 2001 meetings. John Lohmeyer seconded the motion. The motion passed 23:0:0:23=46.

Gene Milligan moved that the May, 2000 meeting be moved to 15-19 May. Jeff Williams seconded the motion. The motion passed 23:1:2.

Dal Allan requested that meeting room arrangements for the Brisbane meeting be completed during the September T10 meeting week.

14.1 Authorization of Working Group Meetings

John noted that the working group meetings are required to operate under the same voting procedures as does T10 (that is, one vote per organization) and the results of a working group are not binding on the parent committee. Ad hoc groups should strive to achieve consensus prior to bringing issues to T10.

Erich Oetting moved that T10 authorize the T10-related meetings and events in the list above. Jeff Williams seconded the motion. The motion passed 26:0:1:19=46.

15. Adjournment

The meeting was adjourned at 2:22 p.m. on Thursday July 15, 1999.

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59 People Present

Status Key: P - Principal
 A,A# - Alternate
 O - Observer
 L - Liaison
 V - Visitor

Enclosure(2) -- T10 Attendance Database

Generated on 1999/07/22 at 14:27:27

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Enclosure(3) -- T10 Document Database

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T10/99-001R0	Date: 1999/03/18	Author: John Lohmeyer	Mailing: 1999_1
Agenda for T10 Meeting #31 (May '99)			
T10/99-001R1	Date: 1999/03/24	Author: John Lohmeyer	Mailing: 1999_1
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T10 Project Summary - Mar '99			
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Jeopardy letter for May '99 meeting			
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Agenda for T10 Meeting #32 (July '99)			
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Letter Ballot on forwarding SSC to first public review			
T10/99-011R0	Date: 1999/07/06	Author: John Lohmeyer	Mailing: 1999_3
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T10/99-102R0	Date: 1998/12/08	Author: Larry Lamers	Mailing: 1999_1
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STT Timeout Function			

T10/99-102R4 Date: 1999/02/05 Author: Larry Lamers Mailing: 1999_1
STT Timeout Function

T10/99-102R5 Date: 1999/03/10 Author: Larry Lamers Mailing: 1999_1
STT Timeout Function

T10/99-103R0 Date: 1998/12/17 Author: John Lohmeyer Mailing: 1999_1
Minutes of SPI-3 Working Group - January 26-27, 1999

T10/99-104R0 Date: 1999/01/10 Author: George Penokie Mailing: 1999_1
Message Information Unit Definition

T10/99-104R1 Date: 1999/03/09 Author: George Penokie Mailing: 1999_1
Message Information Unit Definition

T10/99-105R0 Date: 1999/01/06 Author: Stewart Wyatt Mailing: 1999_1
Minutes of Fibre Channel Tape Profile Meeting - 12/16/98

T10/99-106R0 Date: 1999/01/06 Author: Penman, Mottahedin, Nazir, & Moore Mailing: 1999_1
Case Study: Fast-80 Setup and Hold Timings

T10/99-107R0 Date: 1998/12/10 Author: ISO/IEC JTC 1/SC 25 Mailing: 1999_1
Optical Memory Card Device Commands (SCSI OMC)

T10/99-108R0 Date: 1999/01/07 Author: John Lohmeyer Mailing: 1999_1
Clarification of interaction of SDTR/WDTR messages with PPR message

T10/99-108R1 Date: 1999/01/27 Author: John Lohmeyer Mailing: 1999_1
Clarification of interaction of SDTR/WDTR messages with PPR message

T10/99-108R2 Date: 1999/02/09 Author: John Lohmeyer Mailing: 1999_1
Clarification of interaction of SDTR/WDTR messages with PPR message

T10/99-108R3 Date: 1999/03/09 Author: John Lohmeyer Mailing: 1999_1
Clarification of interaction of SDTR/WDTR messages with PPR message

T10/99-109R0 Date: 1999/01/07 Author: John Lohmeyer Mailing: 1999_1
Clarification of MODIFY DATA POINTER message

T10/99-110R0 Date: 1999/01/07 Author: Gene Milligan Mailing: 1999_1
SCSI Version Proposal Flavor Two for SPC-2

T10/99-110R1 Date: 1999/03/04 Author: Gene Milligan Mailing: 1999_1
SCSI Version Proposal Flavor Two for SPC-2

T10/99-110R2 Date: Author: Gene Milligan Mailing: 1999_1
SCSI Version Proposal Flavor Two for SPC-2

T10/99-111R0 Date: 1999/01/26 Author: Zane Daggett Mailing: 1999_1
Recommended changes to SPI-3 Tables

T10/99-111R1 Date: 1999/05/11 Author: Zane Daggett Mailing: 1999_3
Recommended for content in SPI-3 relating to cable performance

T10/99-111R3 Date: 1999/06/15 Author: Zane Daggett Mailing: 1999_3

Recommendations for content in SPI-3 relating to cable performance

T10/99-112R0	Date: 1999/01/22	Author: Bill Galloway	Mailing: 1999_1
Synchronous ATN timing			
T10/99-112R1	Date: 1999/03/07	Author: Bill Galloway	Mailing: 1999_1
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T10/99-118R0	Date: 1999/01/25	Author: Jim McGrath	Mailing: 1999_1
Common CRC for DT and Packetized SCSI			
T10/99-119R0	Date: 1999/02/26	Author: Jim McGrath	Mailing: 1999_1
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-119R1	Date: 1999/03/05	Author: Jim McGrath	Mailing: 1999_1
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-119R2	Date: 1999/04/06	Author: Mark Evans and Bruce Leshay	Mailing: 1999_2
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-119R3	Date: 1999/04/21	Author: Mark Evans and Bruce Leshay	Mailing: 1999_2
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-119R4	Date: 1999/04/23	Author: Mark Evans and Bruce Leshay	Mailing: 1999_2
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-119R5	Date: 1999/05/28	Author: Mark Evans and Bruce Leshay	Mailing: 1999_3
Protection for the Asynchronous Information phases (Command, Message, Status)			

T10/99-119R6	Date: 1999/06/21	Author: Mark Evans and Bruce Leshay	Mailing: 1999_3
Protection for the Asynchronous Information phases (Command, Message, Status)			
T10/99-120R0	Date: 1999/01/22	Author: Gene Milligan	Mailing: 1999_1
SCSI ATN Timing Sort of Proposal for SPI-3			
T10/99-121R0	Date: 1999/02/10	Author: Rob Sims	Mailing: 1999_1
Mt. Fuji Commands for Multimedia Devices			
T10/99-122R0	Date: 1999/01/25	Author: Frank Gasparik	Mailing: 1999_1
SPI-3 LVD Setup/Hold Time Issues			
T10/99-123R0	Date: 1999/01/26	Author: Vince Bastiani	Mailing: 1999_1
Setup and Hold Time Measurements			
T10/99-124R0	Date: 1999/01/24	Author: Bruce Leshay	Mailing: 1999_1
Packetized CRC Proposal			
T10/99-125R0	Date: 1999/01/27	Author: Ron Roberts	Mailing: 1999_1
Minutes of MMC-2 Working Group - 1/25-27/99			
T10/99-126R0	Date:	Author:	Mailing: Missing
not used			
T10/99-127R0	Date: 1999/01/27	Author: Paul Aloisi	Mailing: 1999_1
Proposed changes to SPI-3 LVD AC timing diagrams			
T10/99-127R1	Date: 1999/01/28	Author: Paul Aloisi	Mailing: 1999_1
Proposed changes to SPI-3 LVD AC timing diagrams			
T10/99-127R2	Date: 1999/03/09	Author: Paul Aloisi	Mailing: 1999_1
LVD Timing Diagram Correction			
T10/99-127R3	Date: 1999/03/09	Author: Paul Aloisi	Mailing: 1999_1
LVD Timing Diagram Correction			
T10/99-127R4	Date: 1999/03/09	Author: Paul Aloisi	Mailing: 1999_1
LVD Timing Diagram Correction			
T10/99-127R5	Date: 1999/05/05	Author: Paul Aloisi	Mailing: 1999_2
LVD Timing Diagram Correction			
T10/99-127R6	Date: 1999/05/27	Author: Paul Aloisi	Mailing: 1999_3
LVD Timing Diagram Correction			
T10/99-127R7	Date: 1999/07/12	Author: Paul Aloisi	Mailing: 1999_3
LVD Timing Diagram Correction			
T10/99-127R8	Date: 1999/07/13	Author: Paul Aloisi	Mailing: 1999_3
LVD Timing Diagram Correction			
T10/99-128R0	Date: 1999/02/02	Author: Hayden Smith	Mailing: 1999_1
Comments on Draft 14776-381 (SCSI OMC)			
T10/99-128R1	Date: 1999/03/16	Author: Hayden Smith	Mailing: 1999_1
Comments on Draft 14776-381 (SCSI OMC)			

T10/99-129R0 Date: 1999/02/02 Author: Ralph Weber & George Penokie Mailing: 1999_1
Minutes of SPC-2 Working Group - 1/28/99

T10/99-130R0 Date: 1999/02/10 Author: George Penokie Mailing: 1999_1
Changes to INQUIRY

T10/99-130R1 Date: 1999/03/10 Author: George Penokie Mailing: 1999_1
Changes to INQUIRY

T10/99-131R0 Date: 1999/02/05 Author: Tariq Abou-Jeyab Mailing: 1999_1
/ Vince Bastiani
Setup and hold time measurements for Ultra 160/m

T10/99-132R0 Date: 1999/03/07 Author: Bill Galloway Mailing: 1999_1
Removing zero length data transfers with CRC

T10/99-133R0 Date: 1999/03/07 Author: Bill Galloway Mailing: 1999_1
Timing for SCSI RST line

T10/99-134R0 Date: 1999/03/07 Author: Bill Galloway Mailing: 1999_1
PPR Protocol options negotiation

T10/99-134R1 Date: 1999/03/13 Author: Bill Galloway Mailing: 1999_1
PPR Protocol options negotiation

T10/99-135R0 Date: 1999/03/16 Author: Weber & Lohmeyer Mailing: 1999_1
Minutes of SPI-3 Working Group - March 9, 1999

T10/99-135R1 Date: 1999/03/23 Author: Weber & Lohmeyer Mailing: 1999_1
Minutes of SPI-3 Working Group - March 9, 1999

T10/99-136R0 Date: 1999/03/17 Author: Weber & Lohmeyer Mailing: 1999_1
Minutes of SCSI-3 Working Group - March 10, 1999

T10/99-137R0 Date: 1999/03/17 Author: Weber & Lohmeyer Mailing: 1999_1
Minutes of T10 Plenary Meeting #30 - March 11, 1999

T10/99-137R1 Date: 1999/03/23 Author: Weber & Lohmeyer Mailing: 1999_1
Minutes of T10 Plenary Meeting #30 - March 11, 1999

T10/99-138R0 Date: 1999/02/09 Author: Larry Lamers Mailing: 1999_1
Patent Letter for SPI-3 from Adaptec

T10/99-139R0 Date: 1999/03/04 Author: Gene Milligan, George Penokie, & Larry Lamers Mailing: 1999_1

Packet Protocol Extensions

T10/99-139R1 Date: 1999/03/10 Author: Gene Milligan, George Penokie, & Larry Lamers Mailing: 1999_1

Packet Protocol Extensions

T10/99-139R2 Date: 1999/03/10 Author: Gene Milligan, George Penokie, & Larry Lamers Mailing: 1999_1

Packet Protocol Extensions

T10/99-139R3 Date: 1999/03/15 Author: Gene Milligan, George Penokie, & Larry Lamers Mailing: 1999_1
Packet Protocol Extensions

T10/99-139R4 Date: 1999/04/08 Author: Gene Milligan, George Penokie, & Larry Lamers Mailing: 1999_2
Packet Protocol Extensions

T10/99-140R0 Date: 1999/02/28 Author: Larry Lamers Mailing: 1999_1
Project Proposal for SCSI Parallel Interface - 4 (SPI-4)

T10/99-140R1 Date: 1999/03/24 Author: Larry Lamers Mailing: 1999_1
Project Proposal for SCSI Parallel Interface - 4 (SPI-4)

T10/99-140R2 Date: 1999/05/06 Author: Larry Lamers Mailing: 1999_2
Project Proposal for SCSI Parallel Interface - 4 (SPI-4)

T10/99-140R3 Date: 1999/05/06 Author: Larry Lamers Mailing: 1999_2
Project Proposal for SCSI Parallel Interface - 4 (SPI-4)

T10/99-141R0 Date: 1999/02/26 Author: Larry Lamers Mailing: Missing
A Common CRC Method for Packetized and Legacy Devices

T10/99-142R0 Date: 1999/02/26 Author: Larry Lamers Mailing: Missing
System Considerations for Parallel SCSI

T10/99-143R0 Date: 1999/03/02 Author: Steve Wilson Mailing: 1999_1
Extended Copy Command

T10/99-143R1 Date: 1999/04/02 Author: Steve Wilson Mailing: 1999_2
Extended Copy Command

T10/99-144R0 Date: 1999/03/01 Author: Bob Snively Mailing: 1999_1
Suggested changes to REPORT LUNS command for SPC-2

T10/99-144R1 Date: 1999/03/15 Author: Bob Snively Mailing: 1999_1
Suggested changes to REPORT LUNS command for SPC-2

T10/99-145R0 Date: 1999/03/01 Author: Stewart Wyatt Mailing: 1999_1
Minutes of Joint T11/T10 FC-TAPE Meeting - 2/10-11/99

T10/99-146R0 Date: 1999/03/02 Author: Bob Snively Mailing: 1999_1
Correction in interaction of persistent and legacy reservations

T10/99-146R1 Date: 1999/03/15 Author: Bob Snively Mailing: 1999_1
Correction in interaction of persistent and legacy reservations

T10/99-147R0 Date: 1999/03/05 Author: Bob Snively Mailing: 1999_1
Make CT and TTD obsolete

T10/99-148R0 Date: 1999/03/18 Author: Ian 'Sid' Crighton Mailing: 1999_1
Memory in Cartridge proposal

T10/99-148R1 Date: 1999/05/19 Author: Ian 'Sid' Crighton Mailing: 1999_3
Proposal for Storage and Access of Data on Media Auxiliary Memory

T10/99-149R0 Date: 1999/03/08 Author: Bill Ham Mailing: 1999_1
Revised SPI-3 Timing Diagram

T10/99-150R0 Date: 1999/03/08 Author: Richard Tomaszewski, Tom Grieff, & Rob Elliott Mailing: 1999_1
Justification for asynchronous information phase protection

T10/99-151R0 Date: 1999/03/04 Author: Gene Milligan, George Penokie, and Larry Lamers Mailing: 1999_1
Packet Protocol Extensions Illustrations (see 99-139r3)

T10/99-152R0 Date: 1999/03/09 Author: Ron Roberts Mailing: 1999_1
Minutes of MMC-2 Working Group - 3/9-10/99

T10/99-153R0 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for MMC-3

T10/99-153R1 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for MMC-3

T10/99-153R2 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for MMC-3

T10/99-154R0 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for RMC

T10/99-154R1 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for RMC

T10/99-154R2 Date: 1999/05/06 Author: Ron Roberts Mailing: 1999_2
Project Proposal for RMC

T10/99-155R0 Date: 1999/03/09 Author: Gene Milligan Mailing: 1999_1
Timing Diagram

T10/99-156R0 Date: 1999/03/09 Author: Bill Ham and Zane Daggett Mailing: 1999_1
Report from the SCSI Cable Testing Ad hoc -- March 2, 1999

T10/99-157R0 Date: 1999/03/10 Author: Bruce Leshay Mailing: 1999_1
Proposed edit to SPI-3 on P_CRCA transitions during DT transfers

T10/99-157R1 Date: 1999/03/17 Author: Bruce Leshay Mailing: 1999_2
Proposed edit to SPI-3 on P_CRCA transitions during DT transfers

T10/99-158R0 Date: 1999/03/10 Author: Bob Snively Mailing: 1999_1
Very long CDBs in FCP-2 and SPI-3

T10/99-158R1 Date: 1999/03/15 Author: Bob Snively Mailing: 1999_1
Very long CDBs in FCP-2 and SPI-3

T10/99-158R2 Date: 1999/03/17 Author: Bob Snively Mailing: 1999_1
Very long CDBs in FCP-2 and SPI-3

T10/99-158R3 Date: 1999/03/17 Author: Bob Snively Mailing: 1999_2

Very long CDBs in FCP-2 and SPI-3

T10/99-158R4 Date: 1999/04/28 Author: Bob Snively Mailing: 1999_2
Very long CDBs in FCP-2 and SPI-3

T10/99-159R0 Date: 1999/03/09 Author: Dale LaFollette Mailing: 1999_1
Joint T10/T11 FC-TAPE / SSC / FCP-2 Liaison Report

T10/99-160R0 Date: 1999/04/01 Author: Rob Elliott & Mailing: 1999_2
Gerry Houlder
Arbitration Fairness Control (in SPC-2/SPI-3/FCP-2)

T10/99-160R1 Date: 1999/04/21 Author: Rob Elliott & Mailing: 1999_2
Gerry Houlder
Arbitration Fairness Control (in SPC-2/SPI-3/FCP-2)

T10/99-160R2 Date: 1999/05/05 Author: Rob Elliott & Mailing: 1999_2
Gerry Houlder
Arbitration Fairness Control (in SPC-2/SPI-3/FCP-2)

T10/99-160R3 Date: 1999/06/27 Author: Rob Elliott Mailing: 1999_3
Normal Arbitration Fairness Control in SPI-3

T10/99-161R0 Date: 1999/03/11 Author: Larry Lamers Mailing: 1999_1
Meeting Notice - SPI-3 Working Group 4/7-8/99

T10/99-162R0 Date: 1999/03/15 Author: Stewart Wyatt Mailing: 1999_1
Minutes of Joint T11/T10 FC-TAPE Meeting - 3/9/99

T10/99-163R0 Date: 1999/05/01 Author: Ralph Weber Mailing: 1999_2
Comments on Extended Copy

T10/99-163R1 Date: 1999/05/13 Author: Ralph Weber Mailing: 1999_2
EXTENDED COPY command for SPC-2

T10/99-164R0 Date: 1999/03/11 Author: Gene Milligan Mailing: 1999_1
ISO Report for March 1999

T10/99-165R0 Date: 1999/03/22 Author: Lamers and Mailing: 1999_1
Lohmeyer
CONTINUE TASK Message

T10/99-166R0 Date: 1999/03/24 Author: Larry Lamers Mailing: 1999_1
Enabling Upper Byte Hamming

T10/99-166R1 Date: 1999/03/26 Author: Larry Lamers Mailing: 1999_2
Enabling Upper Byte Hamming

T10/99-166R2 Date: 1999/03/31 Author: Larry Lamers Mailing: 1999_2
Enabling Upper Byte Hamming

T10/99-166R3 Date: 1999/04/07 Author: Larry Lamers Mailing: 1999_2
Enabling Upper Byte Hamming

T10/99-167R0 Date: 1999/04/08 Author: John Lohmeyer Mailing: 1999_2
Minutes of SPI-3 Working Group - April 7-8, 1999

T10/99-167R1 Date: 1999/04/13 Author: John Lohmeyer Mailing: 1999_2
Minutes of SPI-3 Working Group - April 7-8, 1999

T10/99-168R0	Date: 1999/03/15	Author: Bob Snively	Mailing: 1999_2
FCP-2 changes from revision 0 to revision 1			
T10/99-168R1	Date: 1999/03/31	Author: Bob Snively	Mailing: 1999_2
FCP-2 changes from revision 0 to revision 1			
T10/99-168R2	Date: 1999/04/27	Author: Bob Snively	Mailing: 1999_2
FCP-2 changes from revision 0 to revision 1			
T10/99-169R0	Date: 1999/03/31	Author: Larry Lamers & Vince Bastiani	Mailing: 1999_2
Groundwork for Expander Communication			
T10/99-169R1	Date: 1999/04/08	Author: Larry Lamers & Vince Bastiani	Mailing: 1999_2
Groundwork for Expander Communication			
T10/99-170R0	Date: 1999/04/04	Author: Bill Galloway	Mailing: 1999_2
Packetized cleanup and improvements			
T10/99-170R1	Date: 1999/04/09	Author: Bill Galloway	Mailing: 1999_2
Packetized cleanup and improvements			
T10/99-171R0	Date: 1999/04/07	Author: Bill Ham	Mailing: Missing
Implied Assumptions in SPI-3 Timing Budget			
T10/99-172R0	Date: 1999/04/07	Author: Bill Ham & Zane Daggett	Mailing: 1999_2
Report on April 6th Cable Performance meeting			
T10/99-173R0	Date: 1999/04/08	Author: Bill Galloway	Mailing: 1999_2
Restrict QAS to Packetized			
T10/99-174R0	Date: 1999/04/12	Author: George Penokie	Mailing: 1999_2
Annex A Modification			
T10/99-175R0	Date: 1999/05/07	Author: Weber & Lohmeyer	Mailing: 1999_2
Minutes of SPI-3 Working Group - May 2-3, 1999			
T10/99-175R1	Date: 1999/05/20	Author: Weber & Lohmeyer	Mailing: 1999_2
Minutes of SPI-3 Working Group - May 2-3, 1999			
T10/99-176R0	Date: 1999/05/10	Author: Weber & Lohmeyer	Mailing: 1999_2
Minutes of SCSI-3 Working Group - May 5, 1999			
T10/99-177R0	Date: 1999/05/12	Author: Weber & Lohmeyer	Mailing: 1999_2
Minutes of T10 Plenary Meeting #31 - May 6, 1999			
T10/99-177R1	Date: 1999/05/20	Author: Weber & Lohmeyer	Mailing: 1999_2
Minutes of T10 Plenary Meeting #31 - May 6, 1999			
T10/99-178R0	Date: 1999/04/20	Author: Stewart Wyatt	Mailing: 1999_2
Minutes of Joint T11/T10 FC-Tape Working Group - April 14-15, 1999			
T10/99-179R0	Date: 1999/04/26	Author: Mark Evans	Mailing: 1999_2
Hard Drive Self Tests			
T10/99-179R1	Date: 1999/05/14	Author: Mark Evans	Mailing: 1999_2

Hard Drive Self Tests

T10/99-179R2 Date: 1999/07/08 Author: Mark Evans Mailing: 1999_3
Logical Unit Self Tests

T10/99-180R0 Date: 1999/04/22 Author: Gerry Houlder Mailing: 1999_2
Application Client Log Page proposal

T10/99-180R1 Date: 1999/07/15 Author: Gerry Houlder Mailing: 1999_3
Application Client Log Page proposal

T10/99-181R0 Date: 1999/04/23 Author: Rob Elliott and Mailing: 1999_2
Carl Zeitler
SSC Compression Algorithm default values

T10/99-182R0 Date: 1999/04/27 Author: Tom Coughlan Mailing: 1999_2
Still more on Persistent Reservations

T10/99-182R1 Date: 1999/05/05 Author: Tom Coughlan Mailing: 1999_2
Still more on Persistent Reservations

T10/99-183R0 Date: 1999/04/27 Author: Gene Milligan Mailing: 1999_2
Slow DT Timing Revision Proposal for SPI-3

T10/99-183R1 Date: 1999/05/02 Author: Gene Milligan Mailing: 1999_2
Slow DT Timing Revision Proposal for SPI-3

T10/99-184R0 Date: 1999/04/29 Author: George Penokie Mailing: 1999_2
Miscellaneous SPI-3 Technical Changes

T10/99-184R1 Date: 1999/04/29 Author: George Penokie Mailing: 1999_2
Miscellaneous SPI-3 Technical Changes

T10/99-185R0 Date: 1999/05/01 Author: Rob Elliott & Mailing: 1999_2
Keith Childs
Change CRC timing values

T10/99-185R1 Date: 1999/05/10 Author: Rob Elliott & Mailing: 1999_2
Keith Childs
Change CRC timing values

T10/99-185R2 Date: 1999/06/25 Author: Rob Elliott & Mailing: 1999_3
Keith Childs
Change CRC timing values

T10/99-186R0 Date: 1999/05/03 Author: Gene Milligan Mailing: 1999_2
ISO Report for May 1999

T10/99-187R0 Date: 1999/05/10 Author: John Lohmeyer Mailing: 1999_2
Proposal to change MSE High-Z Current Specification in SPI-3

T10/99-187R1 Date: 1999/06/18 Author: John Lohmeyer Mailing: 1999_3
Proposal to change MSE high-impedance current specification in SPI-3

T10/99-187R2 Date: 1999/07/12 Author: John Lohmeyer Mailing: 1999_3
Proposal to change MSE high-impedance current specification in SPI-3

T10/99-188R0 Date: 1999/05/04 Author: Dan Smith Mailing: 1999_3
SPI-3, rev 7, Section 7 Table and Figure Clarification

T10/99-188R1 Date: 1999/07/13 Author: Dan Smith Mailing: 1999_3
SPI-3, rev 7, Section 7 Table and Figure Clarification

T10/99-189R0 Date: 1999/05/05 Author: Gerry Houlder Mailing: 1999_2
SBC-2: Clarification of ECC Correction Span Field (>255 bits)

T10/99-190R0 Date: 1999/05/06 Author: Ron Roberts Mailing: Missing
Minutes of MMC-2 Working Group - May 3-4, 1999

T10/99-191R0 Date: 1999/05/12 Author: Richard Moore Mailing: 1999_2
Release Glitch Management for QAS

T10/99-191R1 Date: 1999/07/13 Author: Richard Moore Mailing: 1999_3
Release Glitch Management for QAS

T10/99-192R0 Date: 1999/05/11 Author: Barry Blount Mailing: 1999_2
Compaq patent position re US Patent 5,586,272 pertaining to SPI-2

T10/99-193R0 Date: 1999/05/11 Author: Stewart Wyatt Mailing: 1999_2
Minutes of Joint T10/T11 FC_TAPE Meeting - May 4, 1999

T10/99-194R0 Date: 1999/05/21 Author: Larry Lamers Mailing: 1999_3
Meeting Notice - CAM-3 Working Group - June 29-30, 1999

T10/99-195R0 Date: 1999/05/24 Author: Will Renner Mailing: Missing
TTD Proposal

T10/99-196R0 Date: 1999/06/01 Author: Paul Aloisi Mailing: 1999_3
SPI-3 Assumptions for receiver and driver levels

T10/99-197R0 Date: 1999/05/28 Author: Rob Elliott Mailing: 1999_3
REPORT LUNS and small allocation lengths

T10/99-198R0 Date: 1999/06/06 Author: Ralph Weber / Mailing: 1999_3
Deborah Donovan
Public Review Comment #1 on NCITS 330:199x (RBC)

T10/99-199R0 Date: 1999/06/22 Author: Tom Coughlan and Mailing: 1999_3
John Meneghini
Persistent Reservation: Register and Ignore Existing Key

T10/99-200R0 Date: 1999/07/20 Author: Weber & Lohmeyer Mailing: 1999_3
Minutes of SPI-3 Working Group - July 12-13, 1999

T10/99-201R0 Date: 1999/06/15 Author: Weber & Lohmeyer Mailing: Missing
Minutes of SCSI Working Group - July 14, 1999

T10/99-202R0 Date: 1999/06/15 Author: Weber & Lohmeyer Mailing: Missing
Minutes of T10 Plenary Meeting #32 - July 15, 1999

T10/99-203R0 Date: 1999/06/16 Author: Paul Aloisi Mailing: 1999_3
Modeling LVD Terminators

T10/99-204R0 Date: 1999/06/18 Author: Dean Wallace Mailing: Missing
Simulation Document

T10/99-205R0 Date: 1999/06/21 Author: Dean Wallace Mailing: 1999_3
Minutes of SCSI signal modeling study group - June 16, 1999

T10/99-206R0 Date: 1999/06/24 Author: George Penokie Mailing: 1999_3
MCM Additions to Fibre Channel Control page in FCP-2

T10/99-207R0 Date: 1999/07/04 Author: Ralph Weber Mailing: 1999_3
SAM-2 Changes for queuing

T10/99-208R0 Date: 1999/06/09 Author: Rob Elliott Mailing: 1999_3
MRIE behavior with TEST bit asserted

T10/99-209R0 Date: 1999/07/06 Author: Ron Roberts Mailing: 1999_3
Resolution of Public Review Comments on RBC

T10/99-210R0 Date: 1999/07/06 Author: Jeff Williams Mailing: 1999_3
ASC/ASCQ for CRC errors during DT transfer

T10/99-210R1 Date: 1999/07/06 Author: Jeff Williams Mailing: 1999_3
ASC/ASCQ for CRC errors during DT transfer

T10/99-211R0 Date: 1999/07/04 Author: Bob Snively Mailing: 1999_3
FCP-2 changes between revision 1 and revision 2

T10/99-212R0 Date: 1999/07/07 Author: George Penokie Mailing: 1999_3
Packetized error handling changes for SPI-3

T10/99-212R1 Date: 1999/07/07 Author: George Penokie Mailing: 1999_3
Packetized error handling changes for SPI-3

T10/99-212R2 Date: 1999/07/14 Author: George Penokie Mailing: 1999_3
Packetized error handling changes for SPI-3

T10/99-213R0 Date: 1999/07/08 Author: William Petty Mailing: 1999_3
SCSI out of band communications method

T10/99-214R0 Date: 1999/07/15 Author: Larry Lamers Mailing: 1999_3
Project Proposal for SCSI Domain Validation Technical Report

T10/99-214R1 Date: 1999/07/15 Author: Larry Lamers Mailing: 1999_3
Project Proposal for SCSI Domain Validation Technical Report

T10/99-215R0 Date: 1999/07/14 Author: Paul Aloisi Mailing: 1999_3
Crosstalk Issues with 99-111r3

T10/99-216R0 Date: 1999/07/14 Author: Gene Milligan Mailing: 1999_3
ISO Report for July 1999

T10/99-217R0 Date: 1999/07/13 Author: Rob Elliott Mailing: 1999_3
Expansion of ASCQs for ASC 5Dh

T10/99-218R0 Date: 1999/07/14 Author: Erich Oetting Mailing: Missing
Project Proposal for SMC-2 Standard

T10/99-219R0 Date: 1999/07/15 Author: Tom Coughlan Mailing: 1999_3
Persistent Reservations Conflict Behavior

T10/99-220R0 Date: 1999/07/15 Author: Gene Milligan Mailing: 1999_3
Information about US Patent # 4,633,350

T10/99-221R0 Date: 1999/07/14 Author: Kumar Malavalli Mailing: 1999_3

T11 Liaison Report

T10/99-222R0 Date: 1999/07/15 Author: Paul Aloisi Mailing: 1999_3
SCSI Trade Association Report - July 1999

T10/99-223R0 Date: 1999/07/13 Author: Steve Jerman Mailing: 1999_3
Proposal for Storage and Access of Data on Media Auxiliary Memory

T10/99-224R0 Date: 1999/07/13 Author: Stewart Wyatt Mailing: 1999_3
Minutes of T10/T11 FC-Tape Joint Working Group - July 1999